

## I. AMENDMENTS

### IN THE CLAIMS

Cancel claims 37, 44, 46-54, 56, 62, 64, and 76 without prejudice to renewal.

Please enter the amendments to claims 30, 31, 33, 36, 38-40, 43, 45, 55, 57, 60, 63, 69, 73, 74, and 77-79, as shown below.

Please enter new claims 88-96, as shown below.

1.-29. (Canceled)

30. (Currently Amended) A nucleic acid according to claim 57, wherein said nucleic acid comprises a fragment of at least about 25 contiguous nucleotides of a nucleotide sequence having at least about 90% nucleotide sequence identity to the nucleotide sequence set forth in SEQ ID NO:01, wherein said fragment encodes a polypeptide that catalyzes the transfer of a sulfate group from a sulfate donor to a sulfate acceptor.

31. (Currently Amended) An isolated nucleic acid molecule that hybridizes under stringent conditions to a nucleic acid molecule comprising the nucleotide sequence set forth in SEQ ID NO:01, or its complementary sequence, wherein stringent hybridization conditions ~~comprises~~ comprise hybridization at 50°C or higher in a solution comprising 15 mM sodium chloride and 1.5 mM sodium citrate, wherein said nucleotide sequence encodes a ~~functional domain of glycosyl sulfotransferase-3~~ polypeptide that catalyzes the transfer of a sulfate group from a sulfate donor to a sulfate acceptor.

32. (Previously presented) An expression vector comprising the nucleic acid of claim 31.

33. (Currently amended) ~~[[A]]~~ An isolated host cell comprising the expression vector of claim 32.

34. (Previously presented) The host cell of claim 33, wherein the cell is prokaryotic.

35. (Previously presented) The host cell of claim 33, wherein the cell is eukaryotic.

36. (Currently amended) A method of producing a glycosyl sulfotransferase-3 polypeptide, said method comprising:

growing a cell according to claim 33, whereby said polypeptide is expressed; and  
isolating said polypeptide ~~substantially free of other proteins~~.

37. (Canceled)

38. (Currently amended) The nucleic acid of claim 60 ~~[[37]]~~, wherein said fragment comprises a sulfate acceptor binding site comprising site-encoding sequence ~~comprises~~ amino acids 50 to 78 of SEQ ID NO:02.

39. (Currently amended) An expression vector comprising the nucleic acid of claim 60 ~~[[37]]~~.

40. (Currently amended) An isolated host cell comprising the expression vector of claim 39 ~~[[37]]~~.

41. (Previously presented) The host cell of claim 40, wherein the cell is prokaryotic.

42. (Previously presented) The host cell of claim 40, wherein the cell is eukaryotic.

43. (Currently amended) A method of producing a polypeptide that catalyzes the transfer of a sulfate group from a sulfate donor to a sulfate acceptor ~~comprising a sulfate acceptor binding site of glycosyl sulfotransferase-3~~, said method comprising:

growing a cell according to claim 40, whereby said polypeptide is expressed; and  
isolating said polypeptide ~~substantially free of other proteins~~.

44. (Canceled)

45. (Currently amended) The nucleic acid of claim 60 [[44]], wherein said fragment comprises a sulfate donor binding site ~~comprises~~ comprising the amino acid sequence Val-Arg-Tyr-Glu-Asp-Leu (SEQ ID NO:9).

46.-54. (Canceled)

55. (Currently amended) An isolated nucleic acid comprising a sequence which encodes a fragment of at least about 15 contiguous amino acids of a polypeptide having at least about 60% amino acid sequence identity to the sequence depicted in SEQ ID NO:02, wherein said fragment comprises a sulfate acceptor binding site of glycosyl sulfotransferase-3 and wherein said fragment catalyzes the transfer of a sulfate group from a sulfate donor to a sulfate acceptor.

56. (Canceled)

57. (Currently amended) An isolated nucleic acid comprising a nucleotide sequence having at least about 90% nucleotide sequence identity to the sequence set forth in SEQ ID NO:1, wherein said ~~nucleic acid~~ nucleotide sequence encodes a glycosyl sulfotransferase-3.

58. (Previously presented) The isolated nucleic acid of claim 57, wherein said nucleic acid comprises a nucleotide sequence having at least about 95% nucleotide sequence identity to the sequence set forth in SEQ ID NO:1.

59. (Previously presented) The isolated nucleic acid of claim 57, wherein said nucleic acid comprises the nucleotide sequence set forth in SEQ ID NO:1.

60. (Currently amended) An isolated nucleic acid comprising a nucleotide sequence which encodes a fragment of at least about 15 contiguous amino acids of the sequence depicted in SEQ ID NO:02, wherein said fragment ~~comprises a functional domain of glycosyl sulfotransferase-3~~ catalyzes the transfer of a sulfate group from a sulfate donor to a sulfate acceptor.

61. (Previously presented) The nucleic acid of claim 60, wherein said nucleotide sequence encodes a fragment of at least about 50 contiguous amino acids of the sequence depicted in SEQ ID NO:02.

62. (Canceled)

63. (Currently amended) A composition comprising the nucleic acid of any one of claims 31, [[51,]] 55, [[56,]] 57, 58, 59, and 60.

64. (Canceled)

65. (Previously presented) The composition according to claim 63, wherein said composition further comprises a test agent.

66. (Previously presented) The composition according to claim 63, wherein said composition further comprises a sulfate donor.

67. (Previously presented) The composition according to claim 63, wherein said composition further comprises a sulfate acceptor.

68. (Previously presented) The composition according to claim 67, wherein said sulfate acceptor is a selectin.

69. (Currently amended) An expression vector comprising a nucleic acid according to any one of claims 31, [[51,]] 55, [[56,]] 57, 58, 59, and 60, wherein said nucleic acid is operably linked to an exogenous control region.

70. (Previously presented) The expression vector of claim 32, wherein said nucleic acid is operably linked to an exogenous control region.

71. (Previously presented) The nucleic acid of claim 30, wherein said nucleic acid comprises a fragment of at least about 50 contiguous nucleotides of a nucleotide sequence having at least about

90% nucleotide sequence identity to the nucleotide sequence set forth in SEQ ID NO:01.

72. (Previously presented) The nucleic acid of claim 30, wherein said nucleic acid comprises a fragment of at least about 100 contiguous nucleotides of a nucleotide sequence having at least about 90% nucleotide sequence identity to the nucleotide sequence set forth in SEQ ID NO:01.

73. (Currently amended) The nucleic acid of claim 95 ~~[[51]]~~, wherein said nucleic acid comprises at least 50 contiguous nucleotides of the sequence set forth in SEQ ID NO:01.

74. (Currently amended) The nucleic acid of claim 95 ~~[[51]]~~, wherein said nucleic acid comprises at least 100 contiguous nucleotides of the sequence set forth in SEQ ID NO:01.

75. (Previously presented) The nucleic acid of claim 55, wherein said nucleic acid comprises a sequence which encodes a fragment of at least about 50 contiguous amino acids of a polypeptide having at least about 60% amino acid sequence identity to the sequence depicted in SEQ ID NO:02.

76. (Canceled)

77. (Currently amended) A composition comprising a host cell, wherein said host cell comprises ~~a nucleic acid~~ an expression cassette that comprises a nucleotide sequence having at least about 75% nucleotide sequence identity to the sequence set forth in SEQ ID NO:01, wherein said nucleotide sequence encodes a glycosyl sulfotransferase-3 polypeptide that catalyzes the transfer of a sulfate group from a sulfate donor to a sulfate acceptor.

78. (Currently amended) The composition according to claim 77, wherein said host cell comprises ~~a nucleic acid~~ an expression cassette that comprises a nucleotide sequence having at least about 90% nucleotide sequence identity to the sequence set forth in SEQ ID NO:01.

79. (Currently amended) The composition according to claim 77, wherein said host cell comprises ~~a nucleic acid~~ an expression cassette that comprises a nucleotide sequence having at least about 95% nucleotide sequence identity to the sequence set forth in SEQ ID NO:01.

80. (Previously presented) The composition according to claim 77, further comprising a sulfate donor.
81. (Previously presented) The composition according to claim 77, further comprising a sulfate acceptor.
82. (Previously presented) The composition according to claim 81, wherein the sulfate acceptor is a selectin.
83. (Previously presented) The composition according to claim 77, further comprising a test agent.
84. (Previously presented) An expression vector comprising the nucleic acid of any one of claims 57-59.
85. (Previously presented) A host cell comprising the expression vector of claim 84.
86. (Previously presented) The host cell of claim 85, wherein the cell is prokaryotic.
87. (Previously presented) The host cell of claim 85, wherein the cell is eukaryotic.
88. (New) A nucleic acid encoding a glycosyl sulfotransferase-3 (GST-3) polypeptide fragment, wherein said nucleic acid comprises a nucleotide sequence having at least about 75% nucleotide sequence identity to SEQ ID NO:1, and wherein said fragment catalyzes the transfer of a sulfate group from a donor to a selectin ligand.
89. (New) The nucleic acid of claim 88, wherein said nucleotide sequence has at least about 90% nucleotide sequence identity to the sequence set forth in SEQ ID NO:1.
90. (New) The nucleic acid of claim 88, wherein said nucleotide sequence has at least about 95% nucleotide sequence identity to the sequence set forth in SEQ ID NO:1.

91. (New) A fragment of the isolated nucleic acid according to claim 57, wherein said fragment encodes a polypeptide that catalyzes the transfer of a sulfate group from a donor to a selectin ligand.

92. (New) A fragment of the isolated nucleic acid according to claim 58, wherein said fragment encodes a polypeptide that catalyzes the transfer of a sulfate group from a donor to a selectin ligand.

93. (New) A fragment of the isolated nucleic acid according to claim 59, wherein said fragment encodes a polypeptide that catalyzes the transfer of a sulfate group from a donor to a selectin ligand.

94. (New) A nucleic acid comprising a fragment of claim 88, 89, 90, 91, 92, or 93.

95. (New) An isolated nucleic acid that comprises a fragment of at least about 25 contiguous nucleotides of the nucleotide sequence set forth in SEQ ID NO:1, wherein said nucleic acid encodes a polypeptide that catalyzes the transfer of a sulfate group from a sulfate donor to a sulfate acceptor.

96. (New) An expression vector comprising the nucleic acid of claim 94 or 95.